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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/909,338

07/19/2001

Bin He

9606

7590

05/06/2004

BIN HE  
1440 ARDEN VIEW DRIVE  
ARDEN HILLS, MN 55112

EXAMINER

DROESCH, KRISTEN L

ART UNIT

PAPER NUMBER

3762

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/909,338

Applicant(s)

HE, BIN

Examiner

Kristen L Droesch

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 2/9/04 (response).
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-17 is/are allowed.
- 6) ☒ Claim(s) 20-22 is/are rejected.
- 7) ☒ Claim(s) 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

DETAILED ACTION

*Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 recites the limitations "the system" in lines 5, and 6. There is insufficient antecedent basis for this limitation in the claim.

*Claim Objections*

3. Claims 19-22 are objected to because of the following informalities:

Claim 19, line 3: "part of a surface of the body" should be changed to --part of the surface of the heart within the body--.

Claim 19, line 6: "geometry information of the body" should be changed to ---geometry information of the heart within the body--.

Claim 19, last line: "three dimension of the heart" should be changed to -- three dimension space of the heart--.

Claim 20, line 2: "part of a surface of the body" should be changed to --part of the surface of the heart within the body--.

Claim 20, spanning lines 4-5: "geometry information of the body" should be changed to - --geometry information of the heart within the body--.

Claim 20, last line: "space" should be changed to --volume-- for consistency with line 6.

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Claim 21, line 3: "part of a surface of the body" should be changed to --part of the surface of the heart within the body--.

Claim 21, line 6: "geometry information of the body" should be changed to ---geometry information of the heart within the body--.

Claim 22, line 2: "part of a surface of the body" should be changed to --part of the surface of the heart within the body--.

Claim 22, spanning lines 4-5: "geometry information of the body" should be changed to - --geometry information of the heart within the body--.

Claim 22, last line: "space" should be changed to --volume-- for consistency with line 6.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Kiyuna (6,073,040). Kiyuna shows a method or device including the step or means for collecting signals over part of a surface of the heart (Col. 8, lines 42-44) or over part of a surface out of the body using a plurality of sensors and a data acquisition unit; the step or means for determining geometry information of the system (Col. 8, line 57-Col. 9, line 12); the step or means for constructing a electrical source model of the heart (Col. 9, lines 12-18); the step or means for estimating electrical source distribution within the three dimension volume of the heart by

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minimizing the difference between the collected signals and source model generated signals over the same sensor positions over a certain time epoch (Col. 9, line 32-Col. 11, line 20); and the step or means for displaying the estimated electrical source distribution within the three dimension space of the heart (Col. 11, lines 45-48).

6. Claims 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuc et al (5,594,849). Kuc et al. shows a method or device including the step or means for collecting signals over part of a surface of the heart or over part of a surface out of the body using a plurality of sensors and a data acquisition unit (Col. 7, lines 1-6); the step or means for determining geometry information of the system (Col. 10, lines 2-12); the step or means for constructing a electrical source model of the heart (Col. 6, lines 40-43); the step or means for estimating electrical source distribution within the three dimension volume of the heart by minimizing the difference between the collected signals and source model generated signals over the same sensor positions over a certain time epoch (Col. 4, line 57-Col. 5, line 8); and the step or means for displaying the estimated electrical source distribution within the three dimension space of the heart (Col. 10, lines 12-34).

***Allowable Subject Matter***

7. Claims 1-17 are allowed.

8. The prior art of record fails to teach or suggest a method or device including the steps or means for determining geometry information of the system; the step or means for estimating electrical source distribution *and excitation sequence* within the three dimension space of the system by minimizing the difference between collected signals and source model generated signals over the same sensor positions over a *certain time epoch* and means for displaying the

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estimated electrical source distribution *and excitation sequence* together within the three dimension space of the system.

9. Claim 19 would be allowable if rewritten or amended to overcome the claim objections set forth in this Office action.

10. Claim 20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

The prior art of record fails to teach or suggest a method or device including the step or means for determining geometry information of heart within the body; the step or means for constructing an electrical source model of the heart; the step or means for estimating *activation patterns* of electrical activity within the three dimension space of the heart by minimizing the difference between collected signals and source model generated signals over the same sensor positions over a certain time epoch and means for displaying the estimated activation patterns within the three dimension space of the heart.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ben -Haim (5,546,951) shows a method and device that images the heart and superimposes sensed electrical data onto the image. Valdes Sosa et al. (5,307,807) shows a method and apparatus for estimating the source potentials of the brain and heart. Gevins et al. (5,331,970) shows a method and apparatus for estimating the potential distribution of the brain. Gevins et al. (4,736,751) shows a brain source estimation and display system and method.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kristen L Droesch whose telephone number is 703-605-1185. The examiner can normally be reached on M-F, 10:00 am - 6:00 pm.

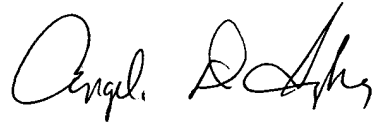
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angie Sykes can be reached on 703-308-5181. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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